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=> d his

     (FILE 'HOME' ENTERED AT 08:52:00 ON 25 JAN 2008)
     FILE 'CA' ENTERED AT 08:52:14 ON 25 JAN 2008
L1  37580 S (HCT OR HEMATOCRIT OR HAEMATOCRIT OR HEMOGLOBIN OR HAEMOGLOBIN OR
          HEMOLY? OR HAEMOLY? OR LYSIS OR RED(2W)CELL?)(6A)(DETECT? OR
          DETERMIN? OR ASSAY? OR ESTIMAT? OR MEASRU? OR MONITOR? OR TEST? OR
          ANALY? OR SENSE# OR SENSOR OR SENSING OR PROBE# OR PROBING OR
          QUATIF? OR QUANTIT? OR QUANT!Z? OR ASSESS?)
L2   1090 S L1 AND (AC OR(ALTERNATING OR A OR OSCILLATING OR MODULAT?)(1W)
          (CURRENT OR C)(2A)(IMPED? OR POLAR? OR VOLTAM? OR COMPONENT OR
          RESPONSE OR SIGNAL OR POTENT? OR CONDUCT? OR RESISTI?) OR KHZ OR
          MHZ OR KILOHERTZ OR MEGAHERTZ OR (KILO OR MEGA)(W)(HERTZ OR HZ) OR
          FREQUENCY)
L3     82 S L2 AND(ELECTRODE OR MINIELECTRODE OR MICROELECTRODE OR ELECTRIC?
          OR ELECTROCHEM? OR BIOSENS? OR BIO SENS?)
L4     56 S L3 AND PY<2004
L5     26 S L3 AND PATENT/DT
     FILE 'BIOSIS' ENTERED AT 09:37:07 ON 25 JAN 2008
L6     25 S L4
     FILE 'MEDLINE' ENTERED AT 09:38:03 ON 25 JAN 2008
L7     27 S L4
     FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 09:40:35 ON 25 JAN 2008
L8    103 DUP REM L4 L5 L6 L6 (31 DUPLICATES REMOVED)

=> d bib,ab,kwic 1-103 l8

L8   ANSWER 14 OF 103  CA  COPYRIGHT 2008 ACS on STN
AN   138:183479  CA
TI   System and method for blood analysis
IN   Kastebo, Ove; Koitsalu, Evald; Nilsson, Bertil
PA   Haemo Wave AB, Swed.
SO   PCT Int. Appl., 27 pp.
PI   WO 2003019166        A1    20030306    WO 2002-SE1530         20020827
PRAI SE 2001-2896         A     20010829
AB   A method for blood anal., comprising detecting the imaginary part of the
     complex impedance in a blood sample having an unknown Hb concn., and
     directly correlating the imaginary part of the complex impedance with
     the Hb concn. in said blood sample.

L8   ANSWER 35 OF 103  BIOSIS  on  STN
AN   1999:494481  BIOSIS
TI   Comparison of optical, electrical, and centrifugation techniques for
     haematocrit monitoring of dialysed patients.
AU   Jaffrin, M. Y. [Reprint author]; Fournier, C.
CS   UMR CNRS 6600, Dept of Biological Engineering, Technological University
     of Compiegne, 60205, Compiegne, France
SO   Medical and Biological Engineering and Computing, (July, 1999) Vol. 37,
     No. 4, pp. 433-439.
AB   Haematocrits were measured as a function of ultrafiltration in a
     simulated haemodialysis circuit using bovine blood (plasma conductivity
     12 mS cm-1) and hypotonic (8. 6mS cm-1) or hypertonic (16 mS cm-1)
     dialysates as as well as in the absence of dialysate.  A comparison was
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made between measurements by light absorption due to haemoglobin, by impedance in the blood line at 5 kHz using Hanai's model of blood conductivity, by conductivity measurements of blood samples at 1.2 kHz using a conductimeter, by centrifugation of blood samples and by calculations using fluid conservation. The validity of Hanai's model was verified to be satisfactory by direct blood and plasma conductivity measurements. In the absence of ionic transfer the impedance device underestimated the haematocrit by 5 to 7%. This underestimation reached 18% in the case of hypertonic dialysate, but this effect can be minimised if the haematocrit necessary for calibration is measured by centrifugation after 15 min of dialysate circulation when ionic balance is achieved. It was found that the optical method monitors haemoglobin concentration rather than red cell volume changes and is not affected by osmotic red cell swelling in the case of hypotonic dialysate. It can be concluded that the light absorption technique is both more accurate and more convenient to use than impedance.

L8 ANSWER 43 OF 103 CA COPYRIGHT 2008 ACS on STN
AN 127:2709 CA
TI Planar hematocrit sensor incorporating a seven-electrode conductivity measurement cell
IN Sullivan, Kevin J.
PA Chiron Diagnostics Corporation, USA; Sullivan, Kevin J.
SO PCT Int. Appl., 23 pp.

PI	WO 9716726	A1	19970509	WO 1996-IB1173	19961031
	US 6058934	A	20000509	US 1996-739234	19961029
PRAI	US 1995-6173P	P	19951102		

AB A cond. sensor for measuring hematocrit and a sensor housing for a blood anal. instrument using the cond. sensor are disclosed. The cond. sensor comprises a seven-electrode cond. measurement cell in which three sym. pairs of electrodes are arranged on opposite sides of a central electrode. The central electrode is connected to an AC source and the outermost pair of electrodes, which provide a return path for the current, are maintained at a ground or ref. potential. The two inner pairs of electrodes measure the voltage drop along the current flow path. This arrangement confines the measurement current and potential within the sensor chamber, thereby preventing the sensor from interfering with other electrochem. sensors that maybe provided in the blood anal. instrument. The sensor housing provides a linear arrangement of flow cells defining a fluid flow path through the housing. The cond. and other sensors are each located within an assocd. cell to form a wall portion of the flow path. The housing arrangement is simple to assemble and provides a flow path which resists fouling and is readily flushed out.

L8 ANSWER 44 OF 103 MEDLINE on STN
AN 97389710 MEDLINE
TI Continuous measurements by impedance of haematocrit and plasma volume variations during dialysis.
AU Maasrani M; Jaffrin M Y; Boudailliez B
CS URA CNRS 858, Technological University of Compiegne, France.
SO Medical & biological engineering & computing, (1997 May) Vol. 35, No. 3, pp. 167-71.

AB A technique for continuous measurements of haematocrit and plasma volume in the arterial line of dialysed patients has been tested in vitro and in vivo. This method uses impedance measurements at 5 kHz and requires a single haematocrit measurement. It relies on two assumptions: that plasma resistivity does not change during dialysis and that blood resistivity obeys Hanai's model. Both assumptions are verified during in vitro tests. Haematocrits measured in vivo by this method are found to be in good agreement with direct measurements from blood samples. The haematocrit variation is then used to monitor changes in plasma volume, assuming conservation of erythrocyte volume. In addition, it is possible to obtain the variation in interstitial volume by combining these data with body impedance measurements.

L8 ANSWER 46 OF 103 CA COPYRIGHT 2008 ACS on STN
AN 126:56883 CA
TI New design technique for planar conductometric hematocrit sensors
AU Varlan, Anca Roxana; Jacobs, Paul; Sansen, Willy
CS Katholieke Universiteit Leuven, ESAT-MICAS, Kardinaal Mercierlaan 94, B-3001, Leuven, Belg.
SO Sensors and Actuators, B: Chemical (1996), B34(1-3), 258-264
AB A novel design technique for planar conductometric sensors is proposed. This procedure is based on the Schwartz-Christoffel conformal transform and keeps under control the design parameters for planar conductometric devices. The new design method is exemplified for the case of a new planar hematocrit sensor. A basic three electrode structure and a semipermeable membrane is considered as a starting point for its development. The proposed device allows simultaneous evaluation of plasma and blood cond. at one single frequency in the low range of the spectrum. The hematocrit sensor is to be further used as an ultrafiltration monitoring device in the hemodialysis process.

L8 ANSWER 51 OF 103 BIOSIS on STN
AN 1995:16569 BIOSIS
TI Non-invasive conductivity technique to detect changes in haematocrit: In vitro validation.
AU Olthof, C. G. [Reprint author]; Kouw, P. M.; Donker, A. J. M.; De Lange, J. J.; De Vries, P. M. J. M.
CS Dep. Anaesthesiol., Free Univ. Hosp., PO Box 7057, 1007 MB Amsterdam, Netherlands
SO Medical and Biological Engineering and Computing, (1994) Vol. 32, No. 5, pp. 495-500.
AB An on-line hematocrit measurement in extracorporeal circuits might be useful under some clinical circumstances (e.g. hemodialysis or cardiac surgery). As no such measurement exists, a device has been developed that makes it possible to detect hematocrit (Ht) continuously without a loss of blood. It is a multi-frequency system for the detection of electrical conductivities. The aim of this study was to investigate whether this device can measure Ht alterations properly. Ht alterations were induced by adding pure mannitol and 20% mannitol to fresh human blood. Furthermore, the effect of both mannitol substances on the intracellular ion content, intracellular conductivity and Ht were investigated. Alternations in Ht were established by the addition of 1000, 800, 600, 400, 200 and 0 mg of pure mannitol to 10 ml of fresh

human blood, and 3.0, 2.5, 2.0, 2.0, 1.5, 1.0, 0.5 and 0 ml of 20% mannitol to fresh human blood until a total volume of 10 ml was achieved. Although their effects were significantly different, pure mannitol and 20% mannitol both caused a reduction in mean cellular volume, and thus in Ht. A highly significant correlation was found between Ht and intracellular conductivity (r = 0.90, p lt 0.001). In addition to these effects, addition of pure mannitol and 20% mannitol had different effects on the intracellular ion content. Pure mannitol caused an increase in intracellular ion content due to a transcellular ion shift, whereas 20% mannitol induced a decrease. From this study, it can be concluded that the multi-frequency conductivity method observes changes in Ht (and intracellular fluid volume) in an accurate manner. Changes in intracellular ion content of erythrocytes depend on the sort of mannitol substance that is added. The intracellular ion concentration can be calculated from measured intracellular conductivity and Ht. The total number of intracellular ions can be derived from intracellular conductivity and the number of erythrocytes.

L8 ANSWER 54 OF 103 MEDLINE on STN
AN 94362488 MEDLINE
TI An electronic method for rapid measurement of haematocrit in blood samples.
AU Cha K; Faris R G; Brown E F; Wilmore D W
CS Department of Surgery, Brigham and Women's Hospital, Boston, MA 02115.
SO Physiological measurement, (1994 May) Vol. 15, No. 2, pp. 129-37.
AB The bioelectrical impedance method was used to determine the haematocrit in patient blood samples. The resistance (R) and reactance (X) of a constant volume of blood were measured at a low (50 kHz) and high (1 MHz) frequency. These dual-frequency impedance measurements were then used to determine the intracellular and extracellular (plasma) fluid volume of the blood and thus the haematocrit in 308 blood samples. The values compared favourably with the microhaematocrit determined on the same samples, giving a correlation coefficient of 0.989 and a standard error estimation of 1.41%. Reactance at 1 MHz was a better parameter for predicting haematocrit than resistances. Factors affecting the resistivity of plasma, such as electrolyte and protein concentrations, were the error sources in the impedance technique. Our technique reduced such errors significantly. In conclusion, this electronic method can be used to measure haematocrit accurately and may be more desirable than conventional methods in certain clinical situations.

L8 ANSWER 56 OF 103 CA COPYRIGHT 2008 ACS on STN
AN 119:67282 CA
TI Method and apparatus for contactless measurement of physical parameters of samples
IN Barnes, Christopher
PA UK
SO Brit. UK Pat. Appl., 33 pp.

PI	GB 2260407	A	19930414	GB 1992-5175	19920310
	US 5583432	A	19961210	US 1994-226075	19940411
PRAI	GB 1991-21496	A	19911010		
	GB 1992-5175	A	19920310		

AB Capacitative and inductive methods and app. for detg. properties of

liqs., particularly blood, are described. Capacitative embodiments may comprise 3 electrodes with the center electrode grounded, arranged along a tube in which the sample may be static or flow. Preferably, 5 electrodes are used with 3 different AC frequencies being fed to the first 2 electrodes and the output signals taken from the last 2 electrodes. An equiv. inductive embodiment uses 2 input coils fed with 2 frequencies and 2 resonant output coils. Alternative circuits vary the frequency of a crystal oscillator or connect a tapped or linked coil in an in-line reflectometer or voltage standing wave meter circuit. The cell may comprise 2 concentric tubes and the app. may compare the sample with a ref. sample. If the sample is whole blood with suitable preservative, its phys. or chem. state may be changed by external influence, e.g. addn. of chem. or blood coagulant, by syringe, pipet or similar. Figures show the various app.

L8 ANSWER 60 OF 103 BIOSIS on STN
AN 1993:428966 BIOSIS
TI Continuous hematocrit monitoring method in an extracorporeal circulation system and its application for automatic control of blood volume during artificial kidney treatment.
AU Ishihara, Toshikazu [Reprint author]; Igarashi, Isemi; Kitano, Tomoyuki; Shinzato, Takahiro; Maeda, Kenji
CS System Engineering Div. I, Toyota Central R and D Lab. Inc., 41-1, Aza-Yokomichi, Oaza-Nagakute, Nagakutecho, Aichi-gun, Aichi 480-11, Japan
SO Artificial Organs, (1993) Vol. 17, No. 8, pp. 708-716.
AB A two-frequency electrical conductivity method for measuring hematocrit has been developed for use in the continuous monitoring of circulating blood volume during artificial kidney treatment. Using this method, an algorithm for programmed control of blood volume also has been developed. This hematocrit measurement method is based on the beta-dispersion of blood conductivity, and the values measured during hemodialysis are in good agreement with the laboratory hematocrit values obtained by a Coulter counter. Programmed control of blood volume was used 29 times on 11 patients undergoing long-term dialysis. In each case, the blood volume was maintained within 2.5% of the desired level, and stable control was achieved even with disturbances caused by eating, change in body position, and so on. These methods can be used to study the relationship between blood volume and dialysis-induced hypotension during artificial kidney treatment and to achieve adequate ultrafiltration without clinical adverse effects.

L8 ANSWER 64 OF 103 MEDLINE on STN
AN 94125666 MEDLINE
TI Implications of the dielectrical behaviour of human blood for continuous online measurement of haematocrit.
AU de Vries P M; Langendijk J W; Kouw P M; Visser V; Schneider H
CS Department of Internal Medicine, Free University Hospital, Amsterdam, The Netherlands.
SO Medical & biological engineering & computing, (1993 Sep) Vol. 31, No. 5, pp. 445-8.
AB A study was designed to explore the possibility of detecting the haematocrit of blood by means of admittance measurements. The admittance and phase angle of blood kept in a measuring cell were

determined at various frequencies between 60 kHz and 24 MHz. A reliable and accurate estimation of haematocrit was obtained in two ways. First, low-frequency admittance, high-frequency admittance and a factor x, which was the conductive percentage of cell content, were used. Secondly, the maximum phase angle was used. Both methods can be applied to obtain continuous on-line information about haematocrit for blood volume control during haemodialysis.

L8 ANSWER 72 OF 103 BIOSIS on STN
AN 1991:120869 BIOSIS
TI ION CONCENTRATION AND HEMATOCRIT AS DETERMINANTS OF IMPEDANCE IN AN ERYTHROCYTE SUSPENSION MODEL OF RENAL MEDULLARY TISSUE.
AU NIEWIADOMSKI W [Reprint author]; SADOWSKI J; BADZYNSKA B; RASMUSSEN S N
CS DEP APPLIED PHYSIOL, MED RES CENT, POLISH ACADEMY SCI, JAZGARZEWSKA 17, 00-730 WARSAW, POLAND
SO Physics in Medicine and Biology, (1990) Vol. 35, No. 11, pp. 1575-1583.
AB In order to analyse the respective roles of ion concentration and fractional volume of the interstitial compartment as determinants of the impedance, Z, of renal medullary tissue, a model was needed in which both these factors could be varied independently. An array of blood cell suspensions in saline (different haematocrit values and different NaCl concentrations) was used for this purpose. It was found that: (i) up to a measuring frequency of about 10 kHz, the complex consisting of needle electrodes and 'tissue' can be regarded as serially connected resistances, R, and capacitances; (ii) the frequency range 3-10 kHz can be regarded as optimal since it simultaneously assures low electrode polarization and a negligible role of tissue capacitance; (iii) increasing the haematocrit had two consequences-a reduced contribution of polarization impedance to the total impedance measured and a decreased sensitivity of ion concentration measurement for R-1 (conductance); (iv) passive electrical properties of renal medullary tissue were close to those of a 75% haematocrit cell suspension; (v) since in high haematocrit suspensions the resistive component of impedance predominates, within the frequency range 3-10 kHz either conductance or admittance, Z-1, can be used as an index of ion concentration; and (vi) impedance changes in kidney tissue are primarily determined by fluctuations of ion concentration with a less important contribution from interstitial volume changes.

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STN INTERNATIONAL LOGOFF AT 09:42:23 ON 25 JAN 2008